APPLICATION FOR
UNITED STATES LETTERS PATENT

TO ALL WHOM IT MAY CONCERN:

Be it known that I, Robert Fetterman, a citizen of the United States of America, residing at Pittsford, New York, have invented a

DASHBOARD INTERFACE FOR BUSINESS INFORMATION

Express Mail Label No.: EL603774669US

DASHBOARD INTERFACE FOR BUSINESS INFORMATION

This invention relates generally to the field of business performance reporting systems, and more particularly to automatically providing, via an application service provider (ASP), business performance information in a graphical format.

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BACKGROUND AND SUMMARY OF THE INVENTION

The present invention is directed to a system and method of automatically providing, via an application service provider (ASP), business performance information in a graphical, dashboard format. Provided in an ASP environment, the

15 present system is intended to reduce or remove the headache of producing business performance documents by small and mid-sized businesses. The system works with conventional, off-the-shelf (COTS) accounting and business reporting software, or with custom software through a common interface, to periodically upload information into an ASP's database. Subsequently, users who wish to see one or more

20 indicators of performance of the business may access the information for display in a dashboard format. Gauges and other graphical illustrations are used to depict performance (YTD, quarterly, monthly, etc.) for easy assimilation by a viewer. Moreover, because the system is preferably Internet-based and accessible through an ASP, it may be accessed from remote locations by key members of the

25 organization (Officer, CFO, etc.) and by those having a need to know the information (investors, Board, etc.).

Further functionality included within what is hereafter referred to as the iDashes system includes the capability for those accessing the performance information to add comments and/or action items related to one or more

performance metrics, where the database would track and archive the information added. The information could be further integrated with an e-mail system to automatically provide distribution of the comments and to update and notify of changes in due dates/action items.

5 Heretofore, a number of patents and publications have disclosed, the relevant portions of which may be briefly summarized as follows:

Patents 6,064,984 and 5,790,120 each depict and describe a computer interface for the display of information in a graphical representation. In particular, patent 5,790,120 discloses a dashboard interface on a computer screen (bottom col.
10 2) where the interface includes a "resource gauge" 15 (Fig. 1). Patent 6,064,984 teaches a financial planning tool with mouse-driven sliders as found in Figure 9 and as described at columns 11-12.

Patents 5,799,286 and 5,991,741 are directed to computer-based financial management systems. Patent 5,799,286 is directed at an activity-based system that
15 employs a relational database to store information while 5,991,741 is directed to a cost accounting and reporting package for use in schools. The report generation features described in both packages, while "standardized" are of a traditional style showing the information in a tabular or chart format. There is no suggestion of using gauges or similar graphical constructs for reporting the information at a higher,
20 "dashboard" level.

Patents 6,073,115, 5,660,547, 5,555,354 and 5,005,148 are each directed to a simulation or virtual reality system of some type. While 5,005,148 and 5,660,547 each disclose a dashboard, they do so only in terms consistent with the conventional usage in an automobile context. In each, the dashboard is part of a user's visual /
25 virtual experience and is unrelated to the display or management of financial or similar organizational performance information. Similarly, patent 4,787,040 is directed to an advanced dashboard display system for an automobile. Patent 6,073,115 discloses a virtual reality generator for use with financial information. Moreover, the patent discloses an embodiment where a user is "positioned" as
30 though in the cockpit of a fighter plane (col. 7). Patent 5,555,354 teaches a 3-D graphical display space, wherein tabular data may be represented in a display space

(3-D). As described beginning at col. 23, the display space may depict tabular sales data in 3-D as columns of different heights.

In accordance with the present invention, there is provided a network-based system for managing a business organization, the business organization having performance information stored electronically in a storage device, wherein the performance information includes at least current year, past year and plan information, said system comprising; a host computer having a database associated therewith, said database storing the performance information for the business organization; and a remote computer, capable of accessing the host computer through a network, said remote computer operating browser software for interacting with said host computer, wherein the host computer dynamically processes the performance information in response to requests received from said remote computer, and produces performance information as a browser-displayable data file that includes at least one graphical representation of the performance information in accordance with a selection specified by the remote computer.

In accordance with another aspect of the present invention, there is provided an automated method for monitoring the performance of a business organization, the business organization having accounting and sales information stored electronically in a storage device, where the accounting and sales information includes current year, past year and plan information, the method comprising the steps of: automatically uploading the accounting and sales information to a database provided at a remote location via a network; computing, from the accounting and sales information uploaded to the database, information indicative of the performance of at least one aspect of the business organization; and generating graphical reports summarizing the performance of at least one aspect of the business organization for display on a browser.

In accordance with yet another aspect of the present invention, there is provided a system for displaying the performance of a business organization, comprising: a computer; a database, accessible by the computer, for storing performance information for the business organization, wherein the performance information includes at least current year, past year and plan information; and a user

interface, accessible via the computer, for interacting with said computer and said database wherein the computer dynamically processes the performance information stored in the database in response to a user's requests, and displays performance information including at least one graphical representation of the performance

5   information.

In accordance with another aspect of the present invention, there is provided method for portraying the performance of a business organization, comprising the steps of: gathering, for at least one aspect of the business organization, data indicative of the actual performance, the planned performance and performance

10   during a prior period; storing the data gathered in a computer memory; processing the data so as to produce a graphical representation of the performance data; and creating a visually perceptible output displaying the performance information, wherein the graphical representation depicts current performance against both planned performance and performance during a prior period.

15   One aspect of the invention deals with a basic problem in the reporting of financial and other operational performance information.   Such information is traditionally reported in tabular format, taking a skilled or trained "eye" to quickly review and understand the information presented.   More recently, accounting systems and known computer software tools allow such information to be displayed

20   in graphs or charts (e.g., Microsoft Excel).   Yet even these display techniques require a familiarity with the information – a familiarity that many managers and other who access the information may not have.   Additionally, the information and representations are often disassociated with the information that shows the drivers of the performance metric being considered.

25   This aspect is further based on the discovery of a technique that alleviates this problem.   The technique utilizes a familiar "dashboard" metaphor to improve the performance reporting for organizations, and does so in addition to providing an Internet (ASP-based) system that facilitates network access to the dashboard tools. Accordingly, the present invention leverages the capabilities of Internet systems and

30   display devices (including computer workstations and mobile computing devices such as Palm Pilots), and also provides an infrastructure for companies and

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organizations to upload the information to an Application Service Provider or ASP. Such a system enables low-cost, rapid implementation of performance reporting, and thereby provides increased value over conventional performance reporting techniques and systems.

5   The instant invention will provide a business unit performance reporting solution that utilizes a unique graphical dashboard for reporting for analysis critical business performance metrics. Preferably implemented as a portal architecture that will support high traffic and data demands of the user community, the Microsoft DNA architecture envisioned employs a Windows2000 server technology to provide the

10   development environment. The requirements for this technology infrastructure target the ASP users, partners and prospects and provide the following core benefits:

       (a) Immediate and easy access to business performance information such as revenue, profits, and production volume;

15   (b) The capability to upload business data via Excel file, ASCII file or through manual data entry web pages to the ASP database; and

       (c) A community site for management to review and analyze the same data and to communicate information in a timely fashion.

       The technique described above is advantageous because it is both efficient

20   and simple – both from the perspective of the company or organization and the end-user. Implementation as an ASP system makes the invention inexpensive compared to conventional approaches where each organization would have to purchase or procure complete reporting systems and interface them to existing accounting and other performance tracking databases. A wide variety of operations

25   can be implemented using these techniques. Each technique can ensure that the end-user is able to review the information in a graphical format that, at least to some extent, depicts information in a familiar and easy-to-interpret manner (e.g., the gas gauge). In addition, some of the techniques can be used together in certain situations. As a result of the invention, performance reporting, and review thereof,

30   will be greatly facilitated.

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1 and 2 are schematic illustrations of the architecture of components of an embodiment of the present invention;

Figures 3 and 4 illustrate the organization of an ASP web site in accordance with an embodiment of the present invention;

Figure 5 is an illustration of a possible database structure for use in association with the ASP website;

Figure 6 is a process flow diagram depicting the general steps a user would complete in interacting with the ASP web site;

Figures 7 and 8 further illustrate the various levels of dashboard information that a user may access in accordance with an aspect of the present invention;

Figure 9 is an exemplary illustration of convention accounting information employed by the present invention; and

Figures 10 – 20 are exemplary user interface screens that are generated in accordance with one or more aspects of the present invention.

The present invention will be described in connection with a preferred embodiment, however, it will be understood that there is no intent to limit the invention to the embodiment described. On the contrary, the intent is to cover all alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

DESCRIPTION OF THE PREFERRED EMBODIMENT

For a general understanding of the present invention, reference is made to the drawings. In the drawings, like reference numerals have been used throughout to designate identical elements. In describing the present invention, the following term(s) have been used in the description.

Technology Overview

Referring initially to Figure 1, there is depicted an overview of a proposed embodiment for the present invention. In particular, the System Architecture 100 includes a plurality of application users 104 running applications for the collection of financial and performance-based information. The computers used by the application users 104 are interfaced via a session and interface manager 108,

preferably Microsoft IIS, and then to an application object manager 112. Manager 112 includes such additional functionality as business logic applications, common system functions and an application transaction layer for data caching and query processing. Also depicted in the system architecture 100 is a database 120, preferably operating Microsoft SQL Server or equivalent database management software for the storage and access to application and user data stored therein.

In the preferred embodiment, the overall system architecture and infrastructure will have the following characteristics:

- Cost effective, especially for initial implementation;

- Robust and reliable to act as a mission critical component of the ASP's business;

- Scalable to grow as the ASP's markets and business expands;

- Flexible to allow for easy support and maintenance by the ASP; and

- Extensible to add features, processes and information as new and more complex requirements are identified.

Although preferably implemented using Microsoft DNA architecture for the ASP because it is a proven platform as a cost effective solution that can grow as the business grows, the system could also be implemented using Java 2 Enterprise Edition (J2EE) architecture and a UNIX/Java platform.

The Microsoft DNA architecture is preferably supported on an IBM PC compatible platform (e.g., Compaq, Dell, Hewlett-Packard multi-Pentium III systems) with an Ethernet Local Area Network (LAN) and T1 high bandwidth access to the Internet backbone. The computer servers will be multi-processor class machines and the disk drives will be RAID configurations. The system must start with 100 GigaBytes of disk space and expandable to a TeraByte of disk space as required based upon business demands. All systems and networks are preferably fully redundant for CPU's, memory, disk drives and power supplies so as to reduce down time or unavailability of the ASP site. The system may also be a leased server that is available from Internet Service Providers (ISPs).

Requirements

As will be further described with respect to Figures 10 – 16, the layout of all the ASP web site pages will preferably be as a Business to Business (B2B) portal in a manner that is clear, consistent, simple and appealing. The user interface will be intuitive and easy to use by the targeted users. The web site flow from page to page, as indicated in Figure 6, will be logical and follow natural progressions. The web site will be designed to be easy to navigate, easy to locate information, visually appealing, and easy to maintain fresh content. There will be easy to identify links to return to previous pages, to return to the top of a process, and to return to the home page.

The system will preferably protect the ASP from unauthorized access to sensitive information. The technology infrastructure will support security access on a customer-by-customer, page-by-page basis and on a person-by-person basis. The software will support security groups whereby access privileges may be defined for a group of users. This will help to make management of access privileges easy to maintain.

Customer data will be encrypted and the data transmissions will be monitored to prevent and detect unauthorized access. There will be two levels of security, and a customer may elect to pay additional fees to set-up more sophisticated security and encryption schemes as are commonly known in business-to-business applications.

It is also proposed that a combination of password protected FTP sites may be employed for sending data to the ASP. Each user will have their own specific download area that keys on their username. Also, each file would be encrypted using encryption algorithms such as PGP, a publicly available encryption method. If someone obtains the encrypted file, it would be useless. Mobile and wireless transmission services will also provide encrypted data transmission using the same data encryption solutions.

Note than unique user sessions is a preferred benchmark for measuring load due to the significantly larger amount of time a session will need to process information rather than actually serving the page to the user. A key to managing

performance for a high load system such as is anticipated with the present embodiment is to cache and pre-process as much data as possible so that the application processing time is minimized. If each user has to perform a complete calculation of all financial data, the ability of a server to support large numbers of

5   users is significantly reduced.

The data upload process will be a batch process that occurs in the background. The software will process data as much as possible at the time data is uploaded and not when pages are called. As presently contemplated, there will be no real-time interaction between the client systems and the ASP. However, it is

10   possible to enable a situation where certain, select customer data is refreshed every 15 minutes.

As described herein, the dashboard ASP will develop and market digital dashboards that support management decision-making. All dashboards will preferably be developed using a common integration design, database schema,

15   transaction design, graphics library and user interface in accordance with the Architecture depicted in Figures 1 and 2.

In a preferred embodiment, all dashboards will share the following set of features:

- a set of graphics elements that are driven by client data stored in the

20   dashboard ASP database;

- for each dash, there will be a generic or basic dash and a configuration view to customize the generic dash; and

- alarms that may be set at minimum or maximum threshold values. An alarm message will be posting on the dash and an e-mail message will

25   be sent to a pre-configured e-mail distribution list in the event one of the alarm thresholds is passed.

The basic dash will be a customer self-service item. The client will have either a set-up wizard or set-up view to create a basic dash without assistance from the dashboard ASP Customer Service staff. In such a wizard or view, the client may

30   specify data elements and graphic widget pairs as well as the view in which those pairs appear (e.g., Main Dash, Primary Dash 1, Primary Dash 2, etc. as illustrated in

Figures 5 and 7). The remaining drill-downs will be predetermined. Data will be entered into the ASP database through the data entry view (manual) or from a properly formatted MS Excel file.

The system will have a complex set of relationships among the dashboards
5 and the data sets. The dashboards will be organized hierarchically to support:

(a) a comment entry field that will post comments that all users can view;

(b) e-mail that allows users the capability to e-mail comments to a pre-determined list of users;

(c) user entry of a link to a file (document, spreadsheet, etc.) or to a web
10 site URL by typing the link pathname/filename or the URL into the comment area;

(d) e-mail, action planning, comments and links organized on the dash to make it easy to post a response to the data;

(e) the assignment of a responsible person to a dash or to trend data; and
15 (f) integration between business strategy and performance goals.

Referring next to Figure 8, the system will have a complex set of relationships among the dashboards and the data sets. The dashboards will be organized hierarchically to support user to drill-down and drill-up in a four (4) level hierarchy that includes:

20 - a Master Dash at Level 1 (810)

- multiple Primary Dashboards at Level 2 (820a, 820b, etc.)

- detailed graphs and data tables at Level 3, and

- raw data tables at Level 4.

Referring to Figure 7, the system will have a larger client organization hierarchy
25 consisting of business entities (corporate 710, division 720, business unit 730), product entities 740 (product line, products) and product or territorial entities 750 (regions, territories).
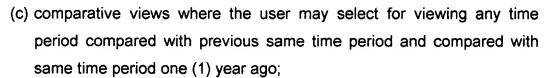
The system will support relationships among data to support and/or view:

(a) up to 15 distinct measures for each company (see detail below);
30 (b) hourly, daily, weekly, monthly and yearly date, including Year to Date (YTD) and last 12 months data;

(c) comparative views where the user may select for viewing any time period compared with previous same time period and compared with same time period one (1) year ago;

(d) navigation across business entities, product entities, and territorial entities.

(e) user permissions and access that may be defined in groups, so that a group may be allowed access at a certain point in the hierarchy (like a business unit or a product line) and will have access to data local under that point but not above or parallel to that point.

Having described a basic system architecture, attention is now turned to the various "products" that may be offered by the ASP. One such product is referred to as EconDash, which allows a user to access and view economic indicators (by industry, region, etc.) using the dashboard schema. EconDash will be available to all visitors and will use real macroeconomic data to demonstrate the dashboard ASP products. EconDash will preferably obtain data over the Internet on a periodic basis from a licensed source, or alternatively the data may be manually updated from public sources. EconDash will include a specific integration solution to the third party supplier of macroeconomic data.

ExecDash will provide measures for financial and business performance to users, including:

(a) volume and revenue metrics;

(b) comparison by time period (quarter to quarter, prior year); and

(c) organized by division, by product line, by product, by business line, by organization.

ProjectDash will provide measures for project teams to monitor the progress and issues related to a specific project including performance against schedule milestones and budget on a project basis. ProjectDash features include:

(a) allowing users to set up meetings and post schedule milestones through the ProjectDash user interface. This feature will preferably link into MS Outlook or similar Windows-based software.

(b) Automatic setting of subsequent project milestones whenever a milestone is slipped or modified.

(c) a polling capability to collect objective and subjective data such as automatic e-mail notifications, track responses, automatic e-mail reminders, pre-configured e-mail lists by project and subproject, capability to request pricing, distribution and standard graphics reports.

Lastly, StrategyDash will provide measures for strategic objectives and initiatives. StrategyDash will post business strategic objectives and, where measurable, actual performance as compared with strategic objectives. StrategyDash will support strategic planning components by company, including company mission and vision, strategic objectives that will (optionally) be posted on the Master Dash, strengths, weaknesses, opportunities and threats (SWOT), Porter Model (trends forecasted for market, competitors, products, potential substitutes, potential new competitors, suppliers), and at least one competitive bulletin boards accessible from the Master Dash, where data and news on competitors is supplied from a web crawler. The client will preferably set-up StrategyDash through a set-up wizard. The Wizard will step the user through a series of strategic assessment questions.

All dashes preferably include a wireless device interface where a sub-set of data, alarms, and graphics will be available for browsing from wireless devices.The dashboards described above are also customizable to a certain extent. The customization of any dashboards will be accomplished through a wizard or view that allows the user to:

(a) select and link data elements to graphic widget, including graphics elements for desktop browsers and a simplified set of graphics for wireless devices;

(b) arrange graphic widgets on a primary dash or drilldown;

(c) specify links among dashboards and drill downs for multiple dashboards and drill downs to create user-specific navigation and

(d) select the frequency that data will be uploaded and the means by which it will be updated (manual entry, MS Excel, ASCII text, other).

The dashboards will present data in one or more of the following forms:

(a) fundamental data elements (volume, revenue, profits) presented through graphic widgets;

(b) data values compared to minimum and maximum preset values;

(c) data values compared with previous Same-time-period data, such as monthly data compared to previous month and month one year ago;

(d) graphs of value trends over a specified time scale; and

(e) bubble graphs offering three value elements.

The dashboards will preferably utilize a business rule to determine the manner in which information is reported. The following table, Table A, represents an exemplary business rule, although other criteria and setting may be chosen.

<div align="center"><u>TABLE A</u></div>

Business Rules	Option A (Default)	Option B
Favorable	Maximize	Minimize
Defined Base	Last Year	Plan
Minimum	Increment under Red mark	Set % off base
Maximum	Increment over Green mark	Set % off base
Green	> max of last year or plan	Set % off base
Yellow	Between Last year and plan	Set % off base
Red	< min of last year or plan	Set % off base

A user will select minimum or maximum compared to previous year or plan. Graphics will indicate actual performance versus minimum, maximum, target (green) or minimal acceptable performance levels (red)

Data Formats and Integration

In a preferred embodiment, at least the following data format integration capabilities will be provided:

- Extraction of data from an MS Excel spreadsheet

- Download of data into the dashboard ASP specified ASCII text format

A user may also request a direct integration with existing Enterprise Resource Planning (ERP) and financial software applications.

A user may also enter data using a manual data entry process, where a data entry view is provided. A client user interface will allow clients the capability to set-up and maintain their data integration solution. This user preferably includes the capability to map data fields to the dashboard ASP format.

Mobile and Wireless Interface

The system will be designed to support optional mobile and wireless devices, including PalmOS PDAs (Palm, Handspring, Sony), PocketPC and Windows CE PDAs (Compaq, Casio, HP), and WAP Capable Cellular Phones (currently available in the US by Sprint, Verizon, AT & T wireless). A downloadable application will be provided for each PDA interface. An additional synchronization area on the dashboard ASP website will allow for downloading updated information. PDAs with cellular capable data modules (Palm VII) will be able to download updated information remotely from the Internet. Application graphics for PDAs are expected to be a subset of the website graphics with limited customization due to small screen size and memory limitations.

Textual information such as alerts and dashboard highlights will be provided for WAP capable cellular phones. Keypad input will be kept to a minimum for WAP users. Each page of information will be structured on WAP page layers called cards. All the dashboard ASP information will be transmitted over the Internet through the cellular service provider to the phone using a secure transmission. WAP phones provide between 3 and 10 lines of text only information. Some rudimentary graphics are possible, but are often limited by the pixel resolution and screen size of most phones. WAP service is very limited as with its installed base, but is expected to grow significantly over the next few years. Wireless Security on cellular PDAs or cellular phones is performed using typical web 128 bit-key technology. Each device has the capability of behaving live a PC web browser thus allowing this method of encryption.

In an alternative embodiment, the dashboard ASP products will be made available as a software package that can be installed by customers who do not wish to utilize the dashboard ASP services.

As is well known for ASPs, customer registration will be facilitated by completion of a company profile and service profile after ordering services. Such a profile may include Contact information (name, title, company, address, email address), a list of authorized user names and the names of at least two (2) primary customer contacts. As described herein, customers will set-up their environment including, selecting the data that will be downloaded to the ASP, identifying the form of the data to be transferred to the dashboard ASP (ASCII file, Excel spreadsheet, text file, other), selecting the graphics, icons, meters and graphs and selecting custom views to create custom features on the main and primary dashboards. The customers will also be urged to test their set-up to validate the set-up and data upload process using a step-by-step set-up wizard or a new customer set-up view.

In order to facilitate use and training of new users, the dashboard ASP will preferably provide a demonstration area, where EconDash will be employed in a live demonstration of the graphics and features of the various dashboard products. The EconDash demonstration will be free and available to all visitors. Moreover, a virtual company will be created and all of the dashboards populated with data for this company. All web site visitors will be encouraged to experience the various dashboard "products" by browsing through the dashboards and drill-downs. It is also anticipated that dynamic banners will advertise specific specials or points of interest within the ASP or related web sites. For example, banners may highlight the latest company press release. These banners may also be used for paid advertising space.

Client Data Entry

In order to utilize the dashboard ASP services, clients must submit business performance data. The present invention facilitates the exchange of business performance data via one of more of the following methods:

(a) manual entry into a web form that is provided by the ASP;

(b) captured in an Excel spreadsheet file;

(c) provided as an ASCII data stream;

(d) provided as a text file; or

(e) as extensible business reporting language (XBRL) as described for example in the Journal of Acountancy, August 2000, pp. 25-30 which are hereby incorporated by reference).

The preferred system will also accept data from commercial Enterprise Resource Planning (ERP) and Financial software packages such as SAP, QuickBooks, PeachTree Accounting, QAD, etc,. These interfaces may be developed on an as-needed basis. The underlying technology for integration will be XML. As noted above, the system will also preferably support the emerging XBRL (Extensible Business Reporting Language).

Having described the general attributes of a preferred embodiment, attention is now turned to the remaining figures, wherein particular aspects of the present invention are further described. With respect to Figure 2, described therein is a system and data architecture in accordance with a preferred embodiment of the present invention. In Figure 2, there is depicted a network-based system 200 that includes a plurality of customer client machines such as hardwired or fixed Internet devices 208 (e.g., desktop and laptop devices) and an wireless Internet devices 212 (e.g., cellular phones, PDAs, and laptops with wireless communications). Each of these devices is connected or connectable to the ASP 220 via a network 214 which may include the Internet 216 and cellular networks 218. The communications over the various cellular or Internet channels may be implemented via secure encrypted traffic methods well known in telecommunications technologies.

Each of the customer client machines will preferably be able to view a graphical user interface (GUI) that is web-based and developed for a browser such as Internet Explorer 5.0 or Netscape Navigator. Many of the graphics employed in the present embodiment, or aspects thereof, may be created using third party graphics library components. Moreover, it is contemplated that static graphics with meter elements positioning determined by the data value will be sufficient for users, and that while possible, there will be little demand for dynamic graphical components on the dashboards. In order to reduce the complexity of the dashboard GUI,

appropriate graphic interchange formatted (GIF) images are preferred as opposed to an alternative flash or shockwave multimedia type graphics.

The network provides connection, via router 222 to the various hardware components provided by the ASP. For example, in a preferred embodiment, the ASP includes a hardware firewall 226 and one or more web servers 230, preferably using a Microsoft DNA architecture in Windows 2000 for a cost effective platform that will handle the significant traffic and data volumes. The web servers will also become the interface to the database storage array 234 that contains the application programs, organizational data and user-specific data (e.g., set-ups, preferences, login/authorization information, etc.).

Turning next to Figures 3 and 4, depicted therein is further information pertaining to the design of a dashboard ASP web site in accordance with the present invention. More specifically, Figure 3 is a diagram of a secure area that will be accessible only by customers and authorized system administrators, whereas Figure 4 is a top-level view of the Dashboard web site illustrating both open access and secure areas. .

At the top level, the site includes an opening multimedia page 310, which transitions to a home page 312. At the home page, the user is presented with a GUI having one or more selectable options, including three primary categories: customer / member information 320, general Internet interface 322 and an ASP management section 324. In particular, the customer / member information is accessed via a customer login page 318, that then presents a main customer-specific page 322.

The main customer page 322 allows a user to access the various dashboards, including ProjectDash 328, ExecDash 330 and StrategyDash 332, examples of which are discussed in further detail below. Moreover, each of these dashboards further includes drill-down links to access the next Level information as depicted in Figure 3. Also included at the main customer page are other links such as ViewMap link 340 that allows a user to view a map of the information available on the site. A reports link 342 allows the user to access report information for viewing or download. The "Ask iDashes" link 344 is provided for users to submit questions

to the ASP administrator relating to the interpretation of data presented on the dashboards.

Utilities are provided under a separate link 350, and include data entry 352 (for loading performance information into the ASP database), and a troubleshooting function 354 for helping customers identify solutions to technical problems online. A customer service help desk link 352 is available in order to interact (via a chat interface) with a customer support representative. Alternatively, comments and suggestions not requiring immediate feedback may be submitted via link 372. A contact list may be created and maintained via link 360, or a user may access a frequently asked questions (FAQ) interface 364. The FAQs are preferably organized and/or limited to company-specific or general questions. Graphics Libraries link 370 provides all the detailed graphic options available for measures within the system.

Also included in the utilities, as described briefly above, are one or more interactive bulletin boards and/or news groups, via link 378. These interactive features enable users within a particular company, business unit, or project team to communicate relative to business and performance matters via the site. Such a feature will encourage access to the site as a primary business management tool.

Lastly, customer account information and maintenance functions are provided via link 376. The functionality provided under this link include updating of user preferences, as well as user registration and historical data including contact information, market segment, end user products for each customer, web site usage history, etc.

With respect to Figure 4, the balance of the ASP site includes additional information links such as membership information 410, the EconDash 414 and its drilldown 416 as described above, an example / tour link 418, as well as ASP-specific information links 420. Under the ASP management section 324, limited to ASP employees only, the system would provide access to content administration 450, usage data via link 454, as well as member profile information for administration of the site and resolution of customer service issues.

The ASP web will include an ASP Contacts page, including corporate office and all field offices. The website will further include functionality that facilitates

collaborative tools for schedules, e-mail, and address books that can be shared amongst an organization's users, so that the ASP users will be able to share calendars, set-up team meetings, create address books, and set-up group e-mail distribution lists.

5   A search engine will include the ability to search the ASP web site, the ASP databases by filenames, titles, keywords, and dates. The user will be able to specify simple and advanced search criteria and will be able to specify locations to be searched (for example: search only the ASP databases). Moreover, the ASP website will be designed to support multiple language files, although an initial

10   version will support English only.

In a preferred embodiment, the system will support collaboration through bulletin boards, instant messaging, video conferencing, all of which enable users to communicate in real-time or near real-time about organizational performance or other issues. Such features will be supported through the integration of third party

15   software and services on ASP web site.

Turning next to Figure 5, depicted therein is a database schema 510 for the various databases maintained on database array 234. Anticipating large volumes of data (several hundred Mbytes), the database must support the following relationships:

20   (a) data relationships to roll-up data from multiple organizations to a higher-level organization or from multiple products to a product line; and

(b) customer contact information, contract information, system configuration, and data.

25   The majority of data is consolidated on one database server, and it is proposed that this server contain an instance of Microsoft Sequel Server. As depicted in Figure 5, schema 510 includes a client account profile database 516 that is referenced in a relational format to the client customer service profile database 518, the client organization profile database 520 and the client product profile database 522. Client

30   data is stored in database 530, via data mapping rules / applications as stored in database 534. Client-specific information relating to data drill down is stored in

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database 540, business rules in database 542 and action plan data in database 544. Lastly, database 552 provides data-typing information and database 552 provides preprocessed graphic, advertising and other elements to the ASP server.

Referring next to Figure 6, displayed therein is a flow chart depicting exemplary interactions that a user may have with the ASP web site. Beginning with the login at step 602, the user is identified as either an existing or a new customer. If new, the user proceeds at step 610 to login, followed by a new customer registration step 612. To proceed with the new customer registration process a user executes an order entry step 614 (including payment options such as credit card, check/cash in advance, or account purchase order). Once completed, the user is presented with set-up instructions at step 616 and the order is acknowledged at step 618. At this point the user may proceed to use the system as an existing customer, step 630.

Upon login an existing customer is presented with the Master Dash screen by step 632 as previously described with respect to Figures 3 and 4. The user may select any of the features/functions depicted in steps 640 – 648, or may select the ExecDash 650, the ProjectDash 652 or the StrategyDash 654 as previously described.

Selection of a data entry link initiates step 660, where the user selects either an automated data download process, step 662, or a manual data entry step 664. Once the data entry is completed, the data is validated at step 668 according to rules defined by the ASP interface and then downloaded at step 670. Upon completion of the download step, the data is stored on array 234 in the client data file of database 530 as described above. A successful download operation results in an acknowledgement 672 whereas an unsuccessful download produces an error and log file 674.

Returning briefly to Figure 7, depicted therein are various dashboards and company structures supported by the present invention. With respect to the various measures presented by any particular dashboard, the measures include revenue, profits, cash, production volume. Moreover, the measures may be presented on or more organizational levels, including Corporate 710, Division 720, Department, Group or Business Unit 730, Product/Service Line 740, or Product, Service 750.

Having described an embodiment of the present invention attention is now turned to an example to illustrate the various features and functions described above. Referring the information provided in the performance indicator table depicted in Figure 9, it will be appreciated that such a table is consistent with conventional performance information reporting – actual, plan and variance information is presented on an annualized basis in columns, where particular rows represent financial and performance measures. Using the data of Figure 9, a user of the present invention would view a dashboard 1010 as depicted in Figure 10 upon login and selection of the ExecDash display button 1002c. In the ExecDash display 1010, the user is presented with a header region 1014, and a metric region 1016.

As illustrated in the figure, header region 1014 identifies the information being provided (e.g., corporate level, hourly update), and allows the user, via menu selection regions 1015a and 1015b, to select the information to be displayed in region 1016. In particular, the volume performance information is indicated in region 1016 using three levels of display, including at a primary level a familiar "gas-gauge" metaphor 1020, at a secondary level a vertical bar graph 1030, and at a tertiary level a visual indicator region1050. Referring specifically to gauge 1020, the range on dial 1022 is dependent upon last year's performance and the current plan (specifically indicated in the lower dial region 1024). In the example, last year's performance for ACC Co. was 39K units and this year's plan is 41.4K units. These rounded numbers are displayed on the gauge, however, the current performance is indicated by a "needle" 1026 as well as a textual printout in region 1028. Thus, a user would quickly be able to determine that unit volume performance, while lagging plan is ahead of last year's performance.

Also shown in region 1016 are the related, secondary and tertiary, metrics under the general volume category. More particularly, the region includes a vertical bar gauge 1030 to show both market share and sales($) 1040. The vertical bar gauges are also visually informative as they are used to depict the actual performance relative to both plan goals and prior year performance – the actual performance being represented by a solid-line indicator 1034, 1044; the prior performance being indicated by a band 1036, 1046 on the graph; and the plan

performance being indicated by band 1038, 1048. Region 1016 includes similar gauges depicting the profit performance metrics of operating profit as a gas gauge 1058 and gross margin percentage as a vertical bar graph 1059.

Along the bottom of the ExecDash display region 1016 is where various additional performance metrics are indicated. In particular, Cash Flow/ROI information is depicted to the leftmost side, where the ROI data is illustrated as a gas gauge 1060. Here the companion information relating to net cash flow is not depicted as a vertical bar graph or a gas gauge, but as color coded indicator 1062 (e.g., red, yellow, green) along the bottom of region 1020. Similar displays are provided for some of the remaining measures of Figure 10 according to user-specified preferences, including an order fulfillment gauge 1070, a complaint rate indicator 1072, an overhead cost gauge 1080, a productivity indicator 1082, a new product volume gauge 1090 and a product pipeline NPV indicator 1092. Accordingly, a user of the ASP system as depicted in Figure 10 would be able to assess the status of key metrics based upon a quick view of the display.

In accordance with the ExecDash embodiment depicted in Figure 120, it will be appreciated that various of the general performance metrics found in the table of Figure 9 (e.g., Volume) may be depicted in association with related information. Thus, The overall unit volume data may be depicted at a primary level as a gauge 1020. Related data such as Market Share and Sales may be represented at a secondary level with the vertical bar graph, and the overall volume performance indicated at a tertiary (course) level with an indicator such as region 1050. As wil be appreciated from Figure 10, indicator 1050 may be color coded (e.g., red, yellow, green), shaded or otherwise represented in a manner indicative of performance. Moreover, indicators such as 1050 may also include icons indicative of performance (e.g., smiling or frowning face; up or down arrows, etc.). It will be further appreciated that the basis or threshold for the indicators may be user selectable, and may include thresholds based upon prior year and/or plan levels.

Also shown on the interface in dashboard 1010 is a legend 1015 in region 1014, where the color scheme used is depicted. It will be appreciated that the color scheme employed is used across all metrics. For example, a Volume metric as

depicted in gas gauge 1020 is confirmed by indicator 1050 being shown in yellow. Similarly, an Actual Market Share in graph 1030 is indicated by line 1034 as being within a yellow region, between prior year (red) and plan (green). Also depicted in the center of region 1016 is a supplemental graphic selection location 1018, wherein

5   a user may select on an iconic or textual link that will display performance information in a product matrix (Figure 14), using a map (Figure 13) or as a growth/profit chart (Figure 15).

In the event that a user wishes to obtain further detail on any particular metric, it is possible to select a drill-down feature on the ExecDash display in response to a

10   user's clicking a cursor over the graphic (e.g., gauge). In particular, such an action will produce a pop-up menu with drill-down options (e.g., trends or data across organizations). . Doing so will result in an interface display 1110 as found in Figure 11. As shown, the drill-down schedule 1110 includes a summary information region 1120 containing gauge 1020, and drill-downs by both product and region 1130 and

15   1150, respectively. Within summary information region 1120, there is included a comments section 1122, including a date for the comment. Also included is an indication and link to the information resource person 1124, the date of last update of the data depicted in the gauge 1126, and a general information link 1128.

Within the product drilldown area 1130, the volume information is shown

20   divided amongst four product categories plus an "all other" category. The data, as previously described is illustrated in the form of a vertical bar chart, having the actual performance being represented by a solid-line indicator 1134; the prior performance being indicated by a band 1136 on the graph; and the plan performance being indicated by band 1138. Also depicted in area 1130 is a single continuous line 1132

25   indicating prior-year levels across each product category, with the vertical bar graphs being adjusted vertically to align with the prior-year line. In a similar format, region 1150 provides the volume information in a region-by-region basis.

Lastly, at the bottom of drill-down interface 1110, is action items region 1160, where users of the system may insert, review, edit action items or similar tasks

30   relating to the performance. This region is capable of providing real-time interaction between a plurality of users, potentially including concurrent users. In this way,

those who are reviewing the drill-down information may also review the status of actions items that are relevant to the particular measure or metric being reviewed.

Turning next to Figure 12, there is depicted a user interface screen 1210 that provides a further breakdown of the information pertaining to unit volume – using a two-dimensional trend graph plotting volume on a month-by-month basis. In such a view, the information depicted in region 1220 directly corresponds with the information contained in the table 1230 below it. Thus, should a user be interested in seeing the information at a high level of detail, and in a manner that is more conventional, they may do so. Also included in the dashboard interface 1210 is a definition region 1212 that provides general information related to the Unit Volume data being depicted. It will be appreciated that graph 1224 is a trend graph that allows the viewer to appreciate the information in a time-oriented fashion. At the bottom of region 1220, trend selection options box 1226 includes pull-down menu and check-box selections that allow the user to customize the manner in which the graph is created and depicted. For example, the user may select one of three options for plotting, including: type of monthly data (e.g., monthly values, YTD values, change from prior year value, percent change from prior year); inclusion of moving averages (e.g., three month or twelve months); and length of time series (e.g., YTD, last twelve months, last three years)..

Yet another example of a graphical representation of performance information is found in Figure 13. There, within display 1310, a graphic of the United States 1314 is depicted with each state having a color, shading, texture or fill indicative of its performance in a certain category. Also included is a legend 1320 for the map wherein the color-coding or shading/fill schema is explained. In accordance with an aspect of the present invention, the system may provide such information if it is provided to the dashboard ASP by the customer company. It will be appreciated that information may also be provided on a regional basis (similar to that depicted in area 1150 in Figure 11). Accordingly, alternative embodiments for display 1310 are possible and may include worldwide or regional illustrations.

A further example of state-based reporting is illustrated in the display of Figure 14. In the figure, display or interface 1410 provides a state-by-state visual

representation of performance relative to plan, prior year, on both a monthly and annual basis. Shown in the display is a legend 1420, a performance indicator matrix 1430 and a set of states where the products are sold along rows 1440. similar regional displays may also be made available for other geographic areas and breakdowns. Each indicator 1450 corresponds to a particular product in the state. For each indicator, the color of the ellipse to the left of a vertical centerline indicates the monthly performance level, and the size of the ellipse to the right of the centerline indicates yearly performance level. In accordance with one intended embodiment, a red fill indicates that performance is below prior year, a yellow fill indicates that performance is between prior years but below plan, and a green fill indicates that performance is above plan. It will be appreciated that the color of either side of the centerline may be different as it is possible for the performance during a current month to be above plan while being below prior year performance on a year-to-date basis. It will be further appreciated that alternative color schemes, fill/shading and similar methods for indicating a performance level may be employed in accordance with alternative embodiments of the present invention.

Another example of a graphical display is found in Figure 15, where the display 1510 includes a scatter diagram 1514 used to depict the performance of various business units on a growth vs. profit margin basis. As seen in the figure, the vertical axis 1520 represents the percentage growth of the unit in the prior year whereas the horizontal axis 1524 represents the operating profit margin as a percentage. The relative size and color/shading/fill of any of the particular points 1530, 1532, etc. may be employed as a further indicator of one or more associated performance metrics, and/or performance against a reference (plan, last period, etc.).

In a further embodiment of the present invention, the ExecDash of Figure 15 may be preceded by an overview and navigational interface as represented by interface 1610 in Figure 16. Referring to Figure 16, the overview interface may be used as an introduction for new users or as an overview for regular users. The interface display 1610 is broken into a plurality of regions, including a President's Message or similar corporate communication region 1620, a performance indicator

region 1630, an action item summary region 1640 and a competitor link region 1640. Referring to region 1620, while depicted as a President's Message, the region may include any material, links or other content that is important for viewers to consider, including press releases, links to earnings statements, etc.

Region 1630 preferably includes a plurality of tertiary performance indicators in the form of colored/shaded icons that provide a coarse overview of the performance of the organization. Moreover, a user's selection of any particular metric will facilitate the display of additional information, preferably in one of the previously described formats. In addition to the coarse indicators in region 1630, there is also status and completion in formation that characterizes, for the users, the level of completeness and currency of the information. Below region 1630 is an action item button 1638 that invokes a display similar in nature to the previously described region 1160 in Figure 11.

Continuing with Figure 16, region 1640 is used to display content associated with the mission, values, goals and objectives of the organization or of particular business units or subsidiaries, etc. This region, like region 1620 is customizable on an organization-by-organization basis, with one or more people having the ability to control or indicate the information to be displayed in the region. At the bottom of display 1610 is region 1650 that includes links to competitive information, preferably including one or more bulletin boards where members of the organization having authorization to do so may engage in the transfer of information relating to competitors, including public as well as private information. As will be appreciated by those familiar with performance reporting and management functions, the overview interface of Figure 16 provides both information and navigational tools to assist a user in quickly reviewing the performance of an organization.

Referring, lastly to Figures 17 – 20, there are depicted user interface screen examples associated with the ProjectDash embodiment of the present invention as briefly described above. In Figure 17 there is depicted a ProjectDash dashbard display 1710 that includes a navigation bar 1714 and an organization overview region 1716. Although depicted with the organization name and executive only, it will be understood that additional organization content may be displayed in the overview

region. At the bottom of the dashboard display 1710 are one or more project status indicator windows 1720.

Within each of the project windows is displayed a three-part indicator 1722 as well as a project title or similar identifier 1724 (code word, logo, etc) and a text field 1726 that may be used to provide project status information. Indicator 1722, although depicted as a triangle may be of any convenient shape, and preferably includes at least three sections: a deliverable indicator 1730, a milestone indicator 1732 and a resource indicator 1734.

In keeping with the intent of providing an immediate visual summary of performance information, the dashboard display preferably employs color/shading and/or iconic representations to indicate the status of level of performance against a project plan. For example, referring to the upper-left project status indicator window, the status indicator 1722 includes a deliverable status indicator 1740 having a "smiling" icon on a green background to indicate satisfactory status against the project plan. Milestone indicator 1742 depicts a "thumbs-down" indicator on a red background to indicate unsatisfactory performance against plan milestones. Lastly, resources indicator 1744 shows a hand on a yellow background to signify lagging performance (resources committed greater than project plan).

As previously noted, the ProjectDash will preferably provide status / performance information for project teams to monitor the progress and issues related to a specific project. As with prior dashboard displays, a user viewing dashboard display 1710 may see further detail on the project status by clicking on its associated indicator. For example, clicking on an indicator 1722 will result in the display of a dashboard display 1810 as illustrated in Figure 18. Display 1810 includes the summary information and indicator from the prior display in region 1814. Region 1820 illustrates the project milestones along a timeline, showing both the planned milestones and the actual dates that completed milestones were achieved.

The resource status of the project is illustrated along the left side of the display in region 1830. Using a bar chart 1832 or similar representation the current resource spend (in currency, man-hours or similar units) is depicted against a plan goal. Display 1810 also includes a deliverables list in region 1840, where the

deliverables are listed in table form, with a written narrative of the status and/or results indicated in the same row as its associated deliverable. Although not depicted in a scrollable format, it will be appreciated that deliverables region 1840 may be implemented as a scrollable display if significant space is required to display

5 the content. Region 1850 is available as a project communication interface where project issues and action items, entered by users of the system, may be displayed, and where relevant links are provided. Such an interface would also allow users to set up meetings and post schedule milestones through the ProjectDash user interface. In a further enhancement, the project information (including tasks,

10 meetings, etc.) would link into Microsoft Outlook or a similar Windows-based task or project management software.

Again, if a user requires more information or detail relating to the milestones or resource status, they may select within the indicator (regions 1820 and 1830, respectively) and displays similar to those in Figures 19 and 20 will be depicted.

15 Referring briefly to Figure 19, there is depicted a milestone display 1910 having a project milestone timeline chart in region 1940. Each of the tasks displayed along the left of the milestone chart is depicted in tabular format at the bottom if display 1910 in region 1930. As depicted in display 1910, the project may be divided into major milestones (table 1932) and second level milestones (table 1934) within each

20 of the major milestones.

Referring to Figure 20, there is illustrated an exemplary representation of a resource display that a user would see if drilling down for resource detail. Display 2010 shows a resource indicator 2016 similar to that depicted in Figure 18, and a breakdown of each of the components contributing to the overall resources in region

25 2020. Once again, the vertical bar graphs are used to display the resource expenditures against the project plan, and the color or shading of the graphs are used to emphasize and distinguish resources used to date, from remaining resources, planned resources and any overages. Region 2030, at the bottom of display 2010, depicts the actual resource data employed in producing the dashboard

30 displays.

As a further enhancement to the project management capabilities of the ProjectDash, the present invention contemplates an embodiment where users may employ the services of the dashboard ASP to conduct on-line or similar customer surveys to qualitatively assess performance against project goals/deliverables. For example, upon completion of a particular milestone, a task may be to conduct a preliminary customer survey to assess customer acceptance. The ProjectDash system may be used to automatically initiate such tasks, where a predefined set of customers is stored in a survey database, and such customers are automatically queried as to satisfaction via e-mail or similar electronic communication medium. The system may be employed to automatically collect, store and assess such information once completed. Moreover, the system may periodically remind those who have not returned surveys. It is believed that such a system, being independently operated by an ASP may be perceived by survey participants as assuring anonymity in surveys in which it is required. Moreover, the system may automatically display survey results in, for example, region 1860 of Figure 18. Accordingly, the automated polling/survey functions include the capability to collect objective and subjective data such as automatic e-mail notifications, track responses, generate automatic e-mail reminders, access pre-configured e-mail lists by project and subproject, and the capability to request pricing, distribution and standard graphics reports.

In recapitulation, the present invention is a system and method of automatically providing, via an application service provider (ASP), business performance information in a graphical, dashboard format. Provided in an ASP environment, the present system is intended to reduce or remove the need for managers to produce business performance documents in small and mid-sized businesses. The system works with conventional, off-the-shelf (COTS) accounting and business reporting software, or with custom software through a common interface, to periodically upload information into the ASP's database. Subsequently, users who wish to see one or more indicators of performance of the business may access the information for display in a dashboard format – gauges and other graphical illustrations are used to depict performance (YTD, quarterly, monthly, etc.)

for easy assimilation by a viewer. Moreover, because the system is preferably Internet-based and accessible through an ASP, it may be accessed from remote locations by key members of the organization (Officer, CFO, etc.) and by those having a need to know the information (investors, Board, etc.)..

5   It is, therefore, apparent that there has been provided, in accordance with the present invention, a method and apparatus for automatically providing, via an application service provider (ASP), business performance information in a graphical format. While this invention has been described in conjunction with preferred embodiments thereof, it is evident that many alternatives, modifications, and

10   variations will be apparent to those skilled in the art. Accordingly, it is intended to embrace all such alternatives, modifications and variations that fall within the spirit and broad scope of the appended claims.